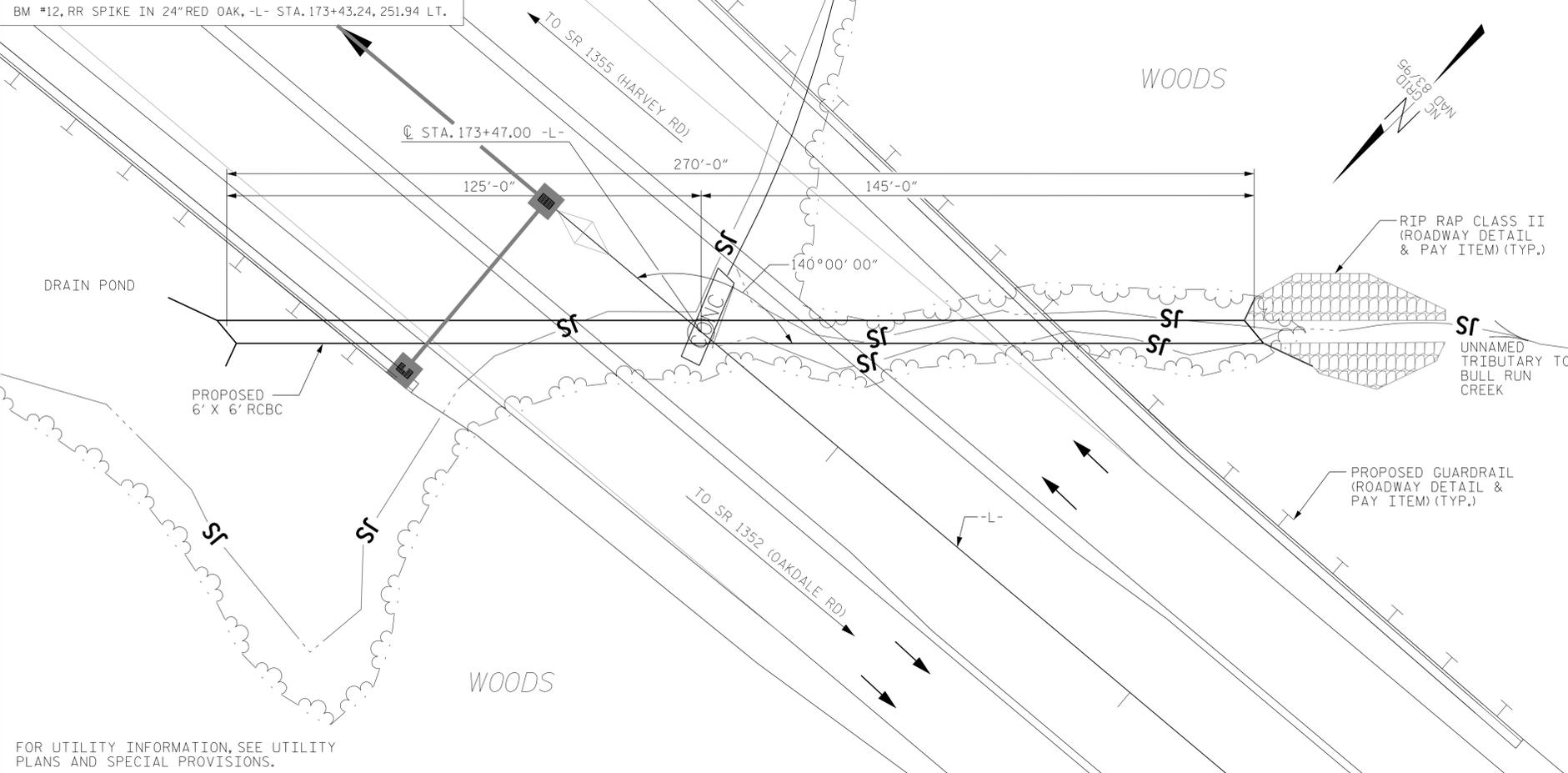


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- NOTES:**
- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 - DESIGN FILL IS 13 FEET.
 - TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FEET. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
 - THERE ARE 42 "C" BARS IN SECTION OF BARREL.
 - THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
 - FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
 - A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
 - NATIVE MATERIAL PLACED BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL BETWEEN THE LOWER SILLS. THE NATIVE MATERIAL SHALL BE MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
 - NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.
 - FOR OTHER DESIGN DATA & NOTES SEE STANDARD NOTE SHEET.
 - 3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
 - CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:
 - WING FOOTINGS, CURTAIN WALLS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
 - THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS
 - THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
 - DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.
 - AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
 - FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 - FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 - FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 - FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

LOCATION SKETCH

ROADWAY DATA

GRADE POINT ELEV. @ STATION 173+47.00 -L- = 781.26
 BED ELEV. @ STATION 173+47.00 -L- = 762.3
 ROADWAY SLOPES 2:1

HYDRAULIC DATA

DESIGN DISCHARGE 210 CFS
 FREQUENCY OF DESIGN FLOOD 50 YR.
 DESIGN HIGHWATER ELEV. 772.6 FT.
 DRAINAGE AREA 90 AC.
 BASE DISCHARGE (Q100) 250 CFS
 BASE HIGHWATER ELEV. 773.2 FT.

OVERTOPPING FLOOD DATA

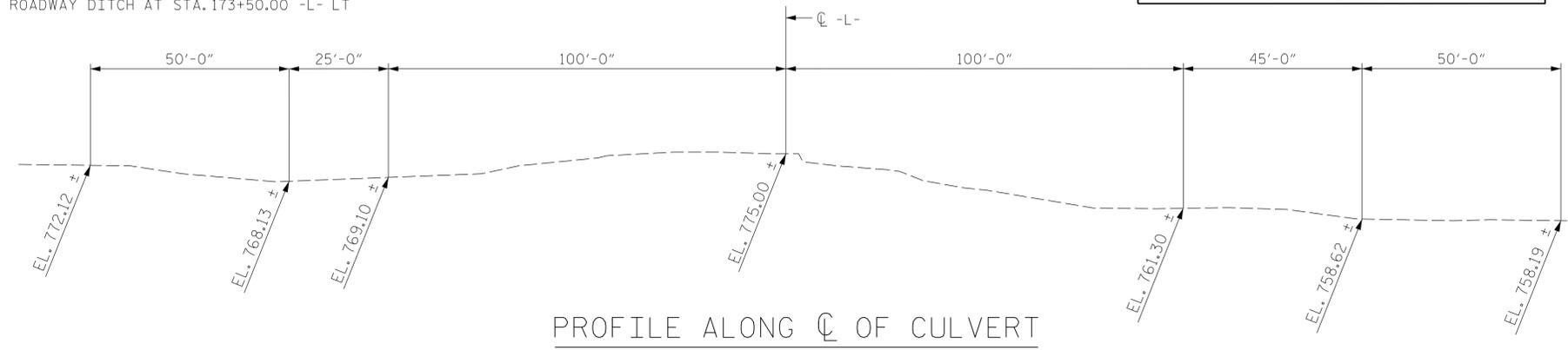
OVERTOPPING DISCHARGE >420 CFS
 FREQUENCY OF OVERTOPPING FLOOD >500 YR.
 OVERTOPPING FLOOD ELEV. 777.3 FT.
 ROADWAY DITCH AT STA. 173+50.00 -L- LT

FOUNDATION NOTES:

- THE REINFORCED CONCRETE BOX CULVERT SHALL BE PLACED ON THE STANDARD 1.0 FOOT BLANKET OF FOUNDATION CONDITIONING MATERIAL, SEE SECTION 414 OF THE STANDARD SPECIFICATIONS.

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE	
BARREL @ 0.67 CY/FT	180.0 C.Y.
WING ETC.	24.6 C.Y.
TOTAL	204.6 C.Y.
REINFORCING STEEL	
BARREL	28096 LBS.
WINGS ETC.	1166 LBS.
TOTAL	29262 LBS.
FOUNDATION COND. MAT'L.	140 TONS
CULVERT EXCAVATION	LUMP SUM



Designed by: Jeff Loftus 3/7/2018



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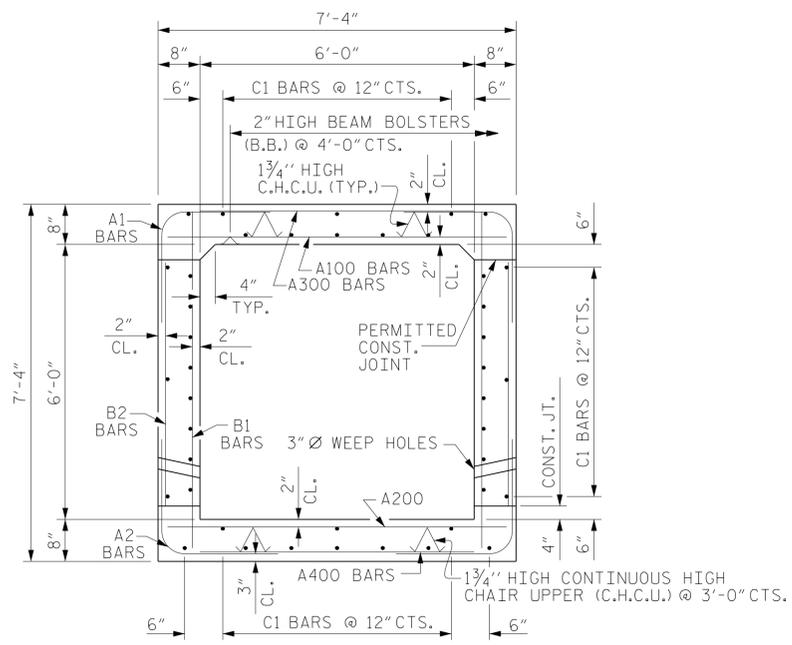
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GUILFORD COUNTY
 STATION: 173+47.00 -L-
 SHEET 1 OF 5

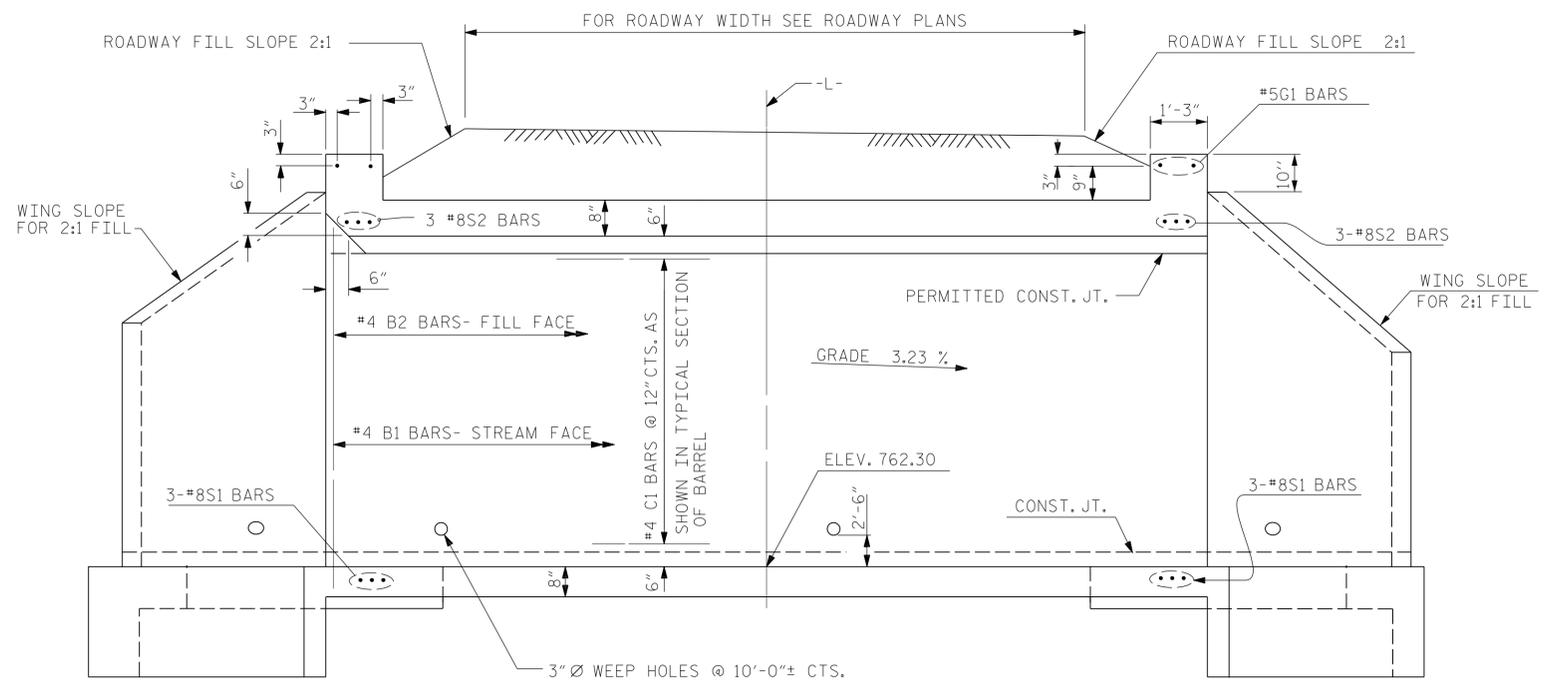
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SINGLE 6 FT. X 6 FT. CONCRETE BOX CULVERT 140° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. C1-1					TOTAL SHEETS 5

DRAWN BY: E. PHELPS DATE: 12/17
 CHECKED BY: J. LOFTUS DATE: 02/18
 DESIGN ENGINEER OF RECORD: J. LOFTUS DATE: 02/18

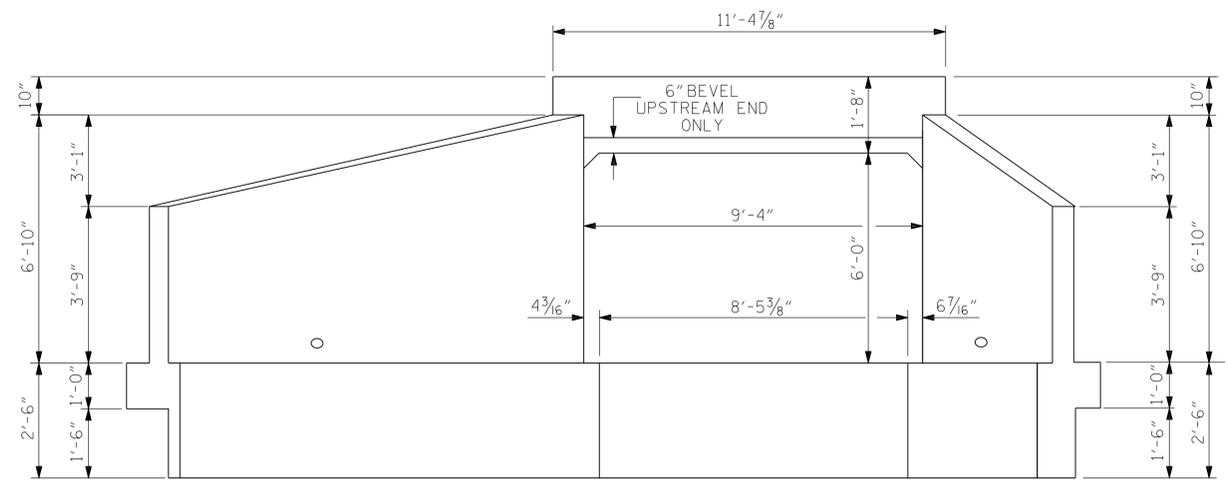
U-2412A
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 USER: jloftus



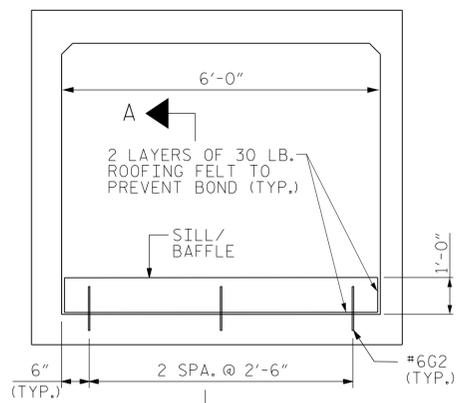
RIGHT ANGLE SECTION OF BARREL
THERE ARE 42 "C" BARS IN SECTION OF BARREL



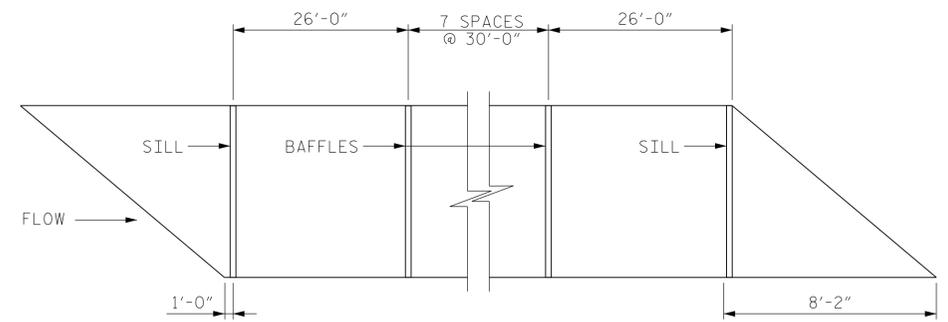
CULVERT SECTION NORMAL TO ROADWAY



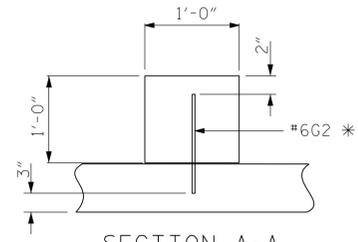
END ELEVATION NORMAL TO SKEW



SILL/BAFFLE DETAIL



SILL/BAFFLE LAYOUT



SECTION A-A

*DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED

PROJECT NO. U-2412A
GUILFORD COUNTY
STATION: 173+47.00 -L-
SHEET 2 OF 5

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FES1000267940



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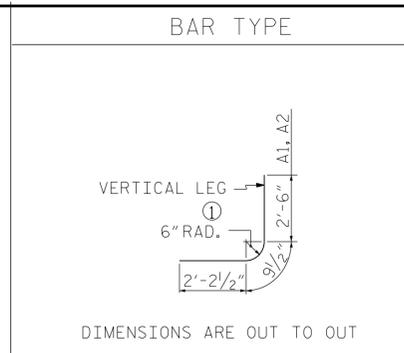
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SINGLE 6 FT. X 6 FT.
CONCRETE BOX CULVERT
140° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-2
1			3			TOTAL SHEETS 5
2			4			

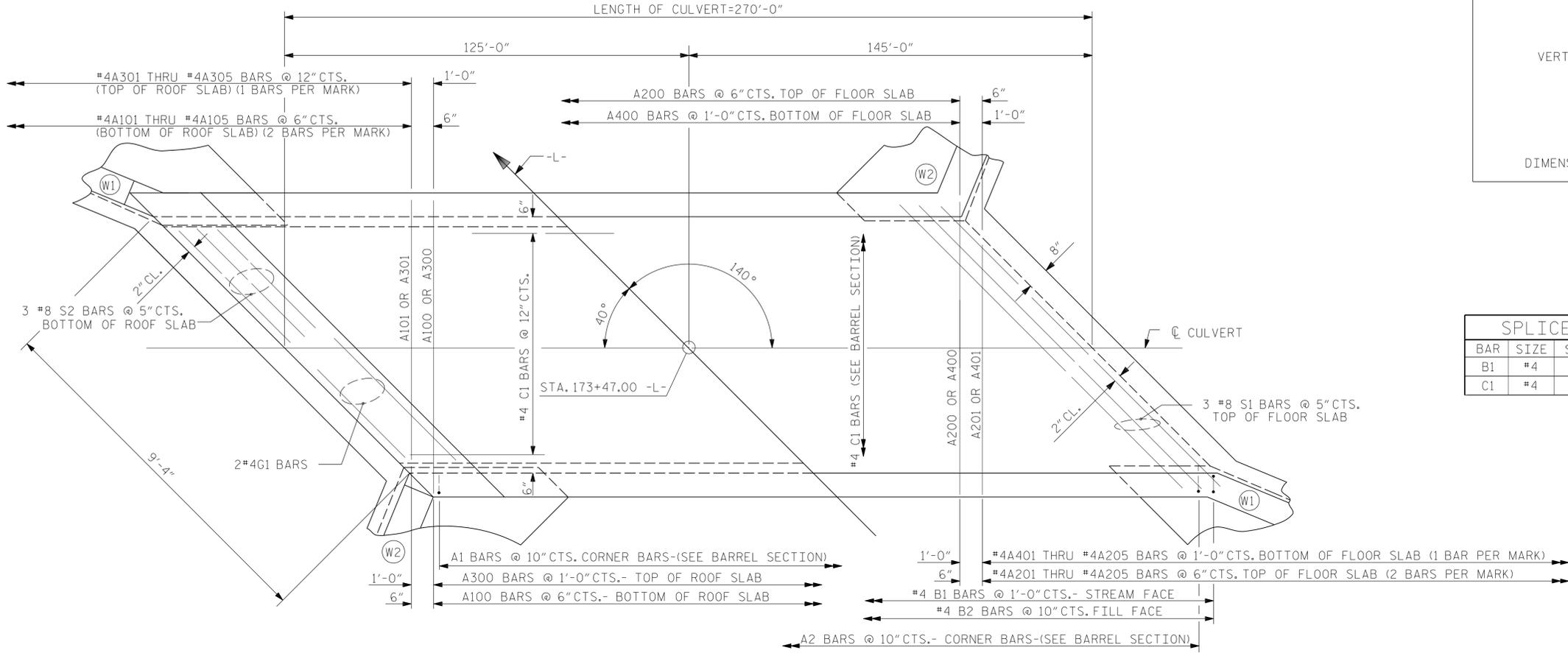
DRAWN BY: E. PHELPS	DATE: 12/17
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DESIGN ENGINEER OF RECORD: J. LOFTUS	DATE: 02/18

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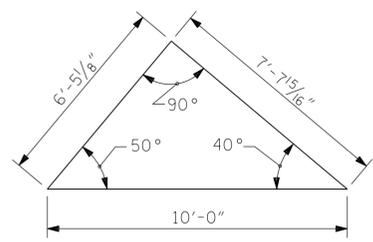
BAR TYPE		BILL OF MATERIAL				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
A1	648	#5	1	5'-6"	3717	
A2	648	#5	1	5'-6"	3717	
A100	525	#4	STR.	6'-11"	2426	
A101	4	#4	STR.	6'-0"	16	
A102	4	#4	STR.	5'-2"	14	
A103	4	#4	STR.	4'-4"	12	
A104	4	#4	STR.	3'-6"	10	
A105	4	#4	STR.	2'-8"	7	
A200	525	#4	STR.	6'-11"	2426	
A201	4	#4	STR.	6'-0"	16	
A202	4	#4	STR.	5'-2"	14	
A203	4	#4	STR.	4'-4"	12	
A204	4	#4	STR.	3'-6"	10	
A205	4	#4	STR.	2'-8"	7	
A300	263	#4	STR.	6'-11"	1215	
A301	2	#4	STR.	6'-0"	8	
A302	2	#4	STR.	5'-2"	7	
A303	2	#4	STR.	4'-4"	6	
A304	2	#4	STR.	3'-6"	5	
A305	2	#4	STR.	2'-8"	4	
A400	263	#4	STR.	6'-11"	1215	
A401	2	#4	STR.	6'-0"	8	
A402	2	#4	STR.	5'-2"	7	
A403	2	#4	STR.	4'-4"	6	
A404	2	#4	STR.	3'-6"	5	
A405	2	#4	STR.	2'-8"	4	
B1	540	#4	STR.	6'-10"	2465	
B2	648	#4	STR.	5'-2"	2236	
C1	420	#4	STR.	28'-8"	8043	
S1	6	#8	STR.	11'-0"	178	
S2	6	#8	STR.	11'-0"	178	
G1	4	#5	STR.	11'-0"	46	
G2	30	#6	STR.	1'-3"	56	
REINFORCING STEEL					28,096 LBS	

SPLICE CHART		
BAR	SIZE	SPLICE LENGTH
B1	#4	1'-9"
C1	#4	1'-11"



PART PLAN - ROOF SLAB

PART PLAN - FLOOR SLAB



SKIEW TRIANGLE

PROJECT NO. U-2412A
 GUILFORD COUNTY
 STATION: 173+47.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SINGLE 6 FT. X 6 FT.
 CONCRETE BOX CULVERT
 140° SKEW

Designed by: *Jeff Loftus* 3/7/2018
 FES1DC02E679448



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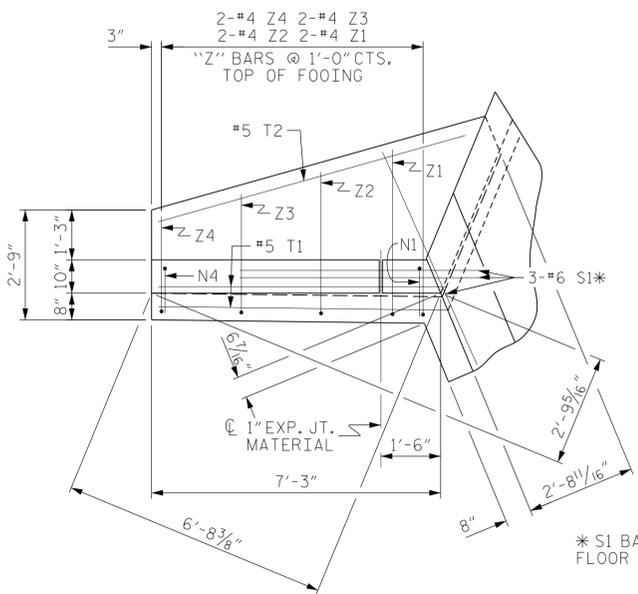
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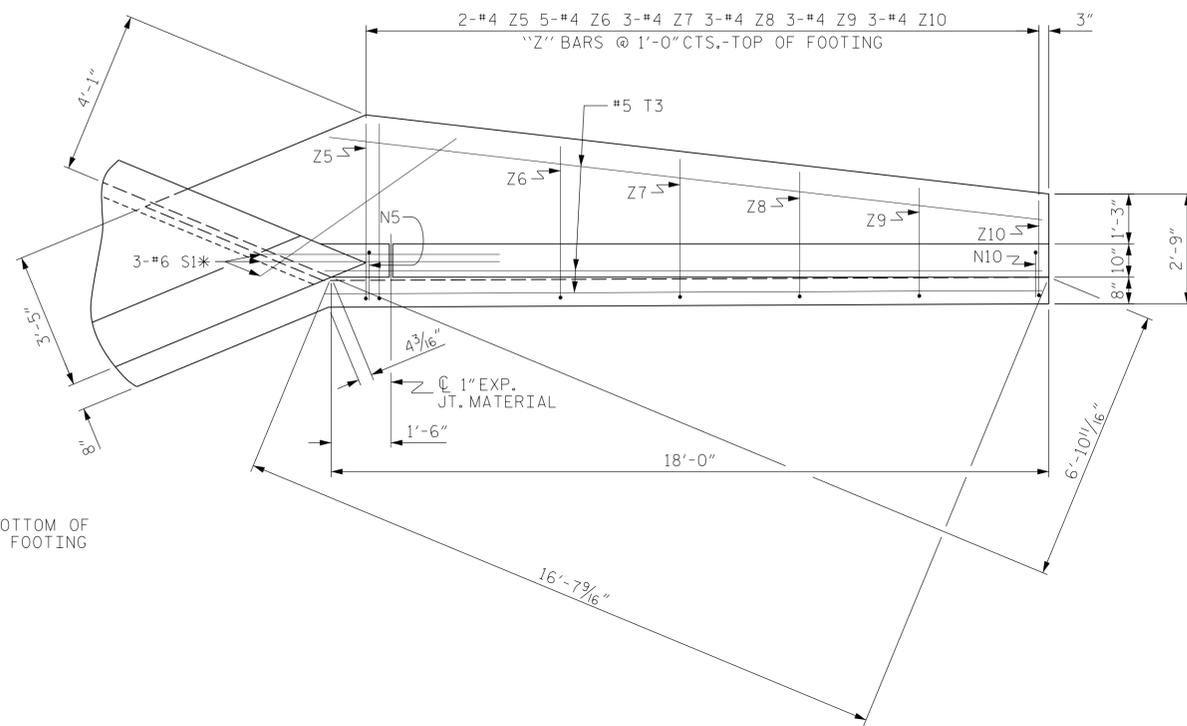
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NO.	BY:	DATE:	NO.	BY:	DATE:	C1-3
1			3			TOTAL SHEETS
2			4			5

DRAWN BY: E. PHELPS DATE: 12/17
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 DESIGN ENGINEER OF RECORD: J. LOFTUS DATE: 02/18

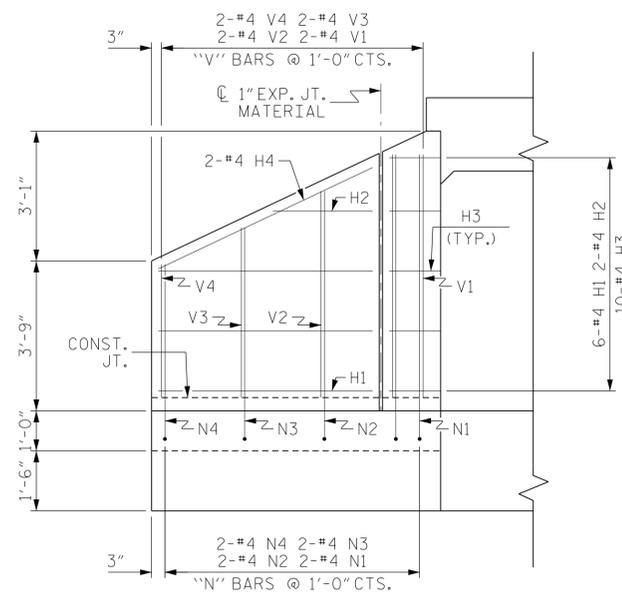
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 USER: jloftus



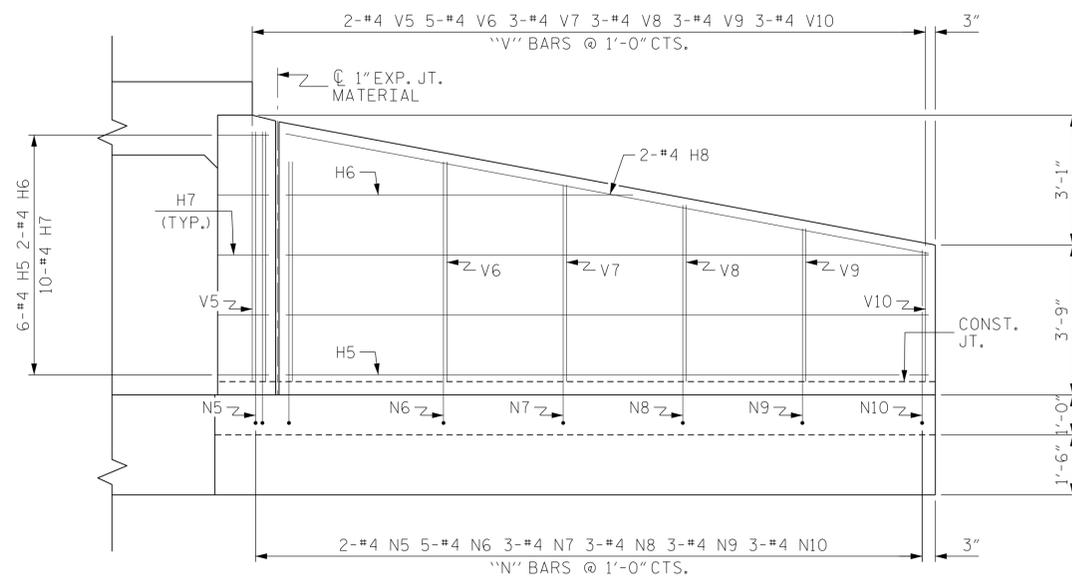
PLAN W2



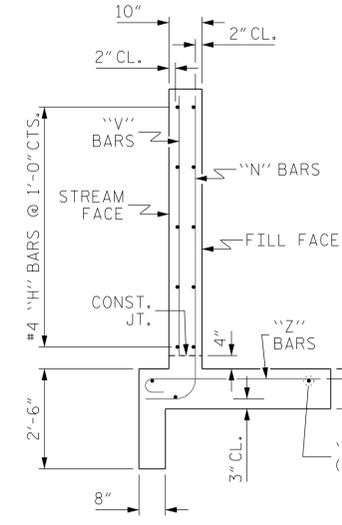
PLAN W1



ELEVATION W2



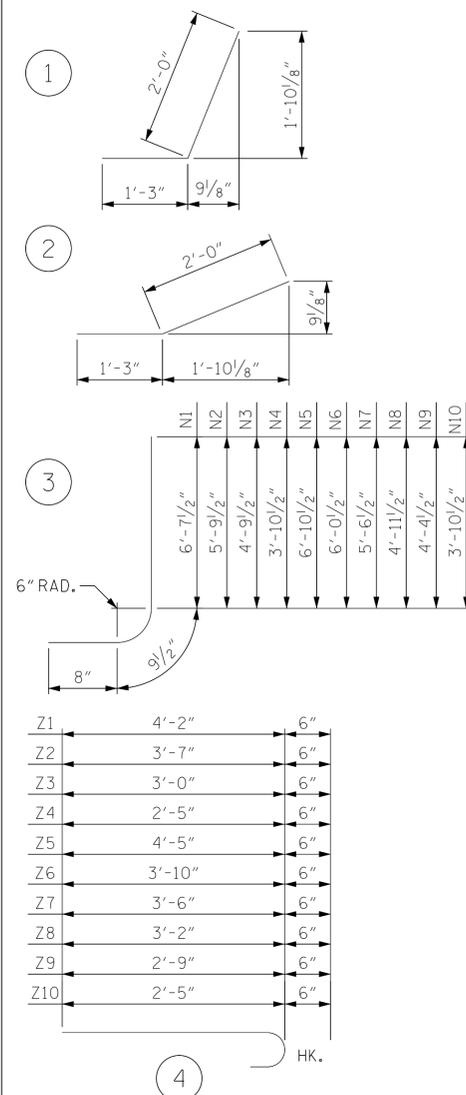
ELEVATION W1



TYPICAL WING SECTION

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR	5'-4"	43
H2	4	#4	STR	2'-6"	7
H3	20	#4	1	3'-3"	43
H4	4	#4	STR	5'-11"	16
H5	12	#4	STR	16'-1"	129
H6	4	#4	STR	8'-8"	23
H7	20	#4	2	3'-3"	43
H8	4	#4	STR	16'-4"	44
N1	4	#4	3	8'-1"	22
N2	4	#4	3	7'-3"	19
N3	4	#4	3	6'-3"	17
N4	4	#4	3	5'-4"	14
N5	4	#4	3	8'-4"	22
N6	10	#4	3	7'-6"	50
N7	6	#4	3	7'-0"	28
N8	6	#4	3	6'-5"	26
N9	6	#4	3	5'-10"	23
N10	6	#4	3	5'-4"	21
S1	12	#6	STR	6'-0"	108
T1	4	#5	STR	7'-3"	30
T2	2	#5	STR	8'-0"	17
T3	6	#5	STR	18'-0"	113
V1	4	#4	STR	6'-1"	16
V2	4	#4	STR	5'-2"	14
V3	4	#4	STR	4'-3"	11
V4	4	#4	STR	3'-4"	9
V5	4	#4	STR	6'-3"	17
V6	10	#4	STR	5'-6"	37
V7	6	#4	STR	4'-11"	20
V8	6	#4	STR	4'-5"	18
V9	6	#4	STR	3'-10"	15
V10	6	#4	STR	3'-3"	13
Z1	4	#4	4	4'-8"	12
Z2	4	#4	4	4'-1"	11
Z3	4	#4	4	3'-6"	9
Z4	4	#4	4	2'-11"	8
Z5	4	#4	4	4'-11"	13
Z6	10	#4	4	4'-4"	29
Z7	6	#4	4	4'-0"	16
Z8	6	#4	4	3'-8"	15
Z9	6	#4	4	3'-3"	13
Z10	6	#4	4	2'-11"	12
REINFORCING STEEL					1166 LBS
FOR 4 WINGS					
CLASS A CONCRETE					
4 WINGS					18.5 CY
2 HEADWALLS					1.1 CY
2 END CURTAIN WALLS					2.7 CY
2 SILLS					0.5 CY
8 BAFFLES					1.8 CY
TOTAL					24.6 CY



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STATION: 173+47.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD WINGS
FOR
CONCRETE BOX CULVERT
H = 6'-0" SLOPE = 2:1
135° SKEW

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2			4			5

STD. NO. CW4506

3/6/2018
DRAWN BY: E. PHELPS DATE: 12/17
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DESIGN ENGINEER OF RECORD: J. LOFTUS DATE: 02/18

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\\113-007-U2412A-SMU-WW04-C-4.dgn
USER: jloftus

LOAD AND RESISTANCE FACTOR RATING (LRFR)
SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER	
						LIVE-LOAD FACTORS (LL)	MOMENT				SHEAR				
							RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE		DISTANCE FROM LEFT END OF ELEMENT (ft)
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A		N/A	N/A	1.75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
	HL-93 (OPERATING)	N/A		N/A	N/A	1.35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
	HS-20 (INVENTORY)	36.000		N/A	N/A	1.75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
	HS-20 (OPERATING)	36.000		N/A	N/A	1.35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	1	
		SNGARBS2	20.000		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	1	
		SNAGRIS2	22.000		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	1	
		SNCOTTS3	27.250		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	1	
		SNAGGRS4	34.925		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	1	
		SNS5A	35.550		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	1	
		SNS6A	39.950		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	1	
		SNS7B	42.000		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	1	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1
		TNT4A	33.075		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1
		TNT6A	41.600		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1
		TNT7A	42.000		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1
		TNT7B	42.000		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1
		TNAGRIT4	43.000		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1
TNAGT5A	45.000		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1		
TNAGT5B	45.000		N/A	N/A	1.40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1		
PERMANENT LOADS		N/A	#4	1.02	N/A	N/A	1.02	1	TOP SLAB	0.1	1.02	1	EXTERIOR WALL	0.1	2

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

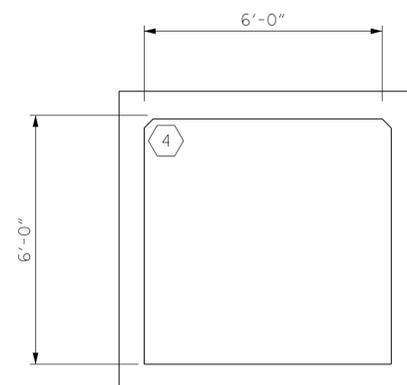
NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

COMMENTS:

- EFFECTS OF LIVE LOAD MAY BE NEGLECTED ACCORDING TO AASHTO LRFD 3.6.1.2.6 (DESIGN FILL=13.0')
- CULVERTS WITH DEEP FILL SHOULD BE EVALUATED FOR THE EFFECTS OF PERMANENT LOADS ONLY ACCORDING TO "THE MANUAL FOR BRIDGE EVALUATION 6A.5.2.3A"

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
4	PERMANENT LOAD RATING
** SEE CHART FOR VEHICLE TYPE	



LRFR SUMMARY
(LOOKING DOWNSTREAM)

PROJECT NO. U-2412A
GUILFORD COUNTY
STATION: 173+47.00 -L-

SHEET 5 OF 5

Designed by: Jeff Loftus 3/7/2018
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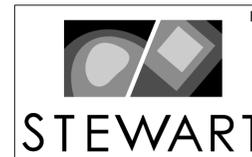


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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 6 FT. X 6 FT.
CONCRETE BOX CULVERT
140° SKEW

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NO.	BY:	DATE:	NO.	BY:	DATE:	C1-5
1			3			TOTAL SHEETS
2			4			5

DRAWN BY: E. PHELPS DATE: 12/17
CHECKED BY: J. LOFTUS DATE: 02/18
DESIGN ENGINEER OF RECORD: J. LOFTUS DATE: 02/18

U-2412A
3/6/2018
...413-009_U2412A_SMU_LRFR05_C-5.dgn
USER: jloftus

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	--	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	--	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	--	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	---	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	---	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST $\frac{5}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY $\frac{1}{16}$ " INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN